



PHILLIPS OIL COMPANY

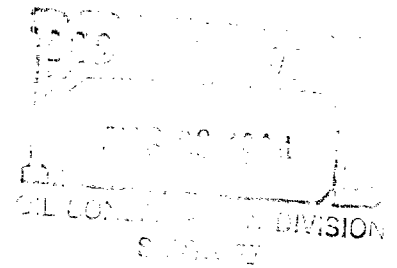
A SUBSIDIARY OF PHILLIPS PETROLEUM COMPANY

EXPLORATION AND PRODUCTION GROUP
Permian Basin Region

ODESSA, TEXAS 79762
4001 PENBROOK

August 21, 1984

Request for Increase in Surface Injection
Pressure - WFX-502, Phillips E State No. 19
(State Lease B-2229)
Maljamar Grayburg/San Andres Pool,
Lea County, New Mexico



Department of Energy and Minerals - 3
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Attention: Mr. Joe D. Ramey,
Division Director

Gentlemen:

We respectfully request administrative approval of an increase in the surface injection pressure limitations from 880 psi to 2600 psi for the captioned well in the Northeast Maljamar Waterflood Project. Such a pressure increase is necessary to effectively and efficiently maintain the waterflood operations at this location and to drain and recover the hydrocarbons from this segment of the project area.

An injection step-rate test was conducted on May 1, 1984, which indicates that the injection formation fracture pressure rate is greater than 2800 psig (surface). We attach copies of that test procedure, a tabulation of the data from the same, as well as the test chart and a fracture correlation curve of the step-rate test.

Phillips Oil Company operates all offsetting proration units as well as all wells within one-half mile of the captioned well. The mechanical integrity of each such well is sufficient to withstand the increased surface injection pressure at the Phillips E State No. 19. A plat of this area of review is attached.

Your early consideration and approval is appreciated. Please direct any questions to me at the number indicated below or to Mark Schmeeckle - telephone (915) 367-1418.

Very truly yours,

T. Harold McLemore
Regulation and Proration Supervisor
(915) 367-1257

THM:adk
Attachments

cc: OCD - Hobbs, New Mexico
Commission of Public Lands
Box 1148
Santa Fe, New Mexico 87501

2500 1 REQUEST

PHILLIPS OIL COMPANY
Phillips E State No. 19
Unit J, 15, 17S, 33E
Lea County, New Mexico
Maljamar Gb/San Andres Pool

APPLICATION FOR AN INCREASED INJECTION PRESSURE LIMITATION

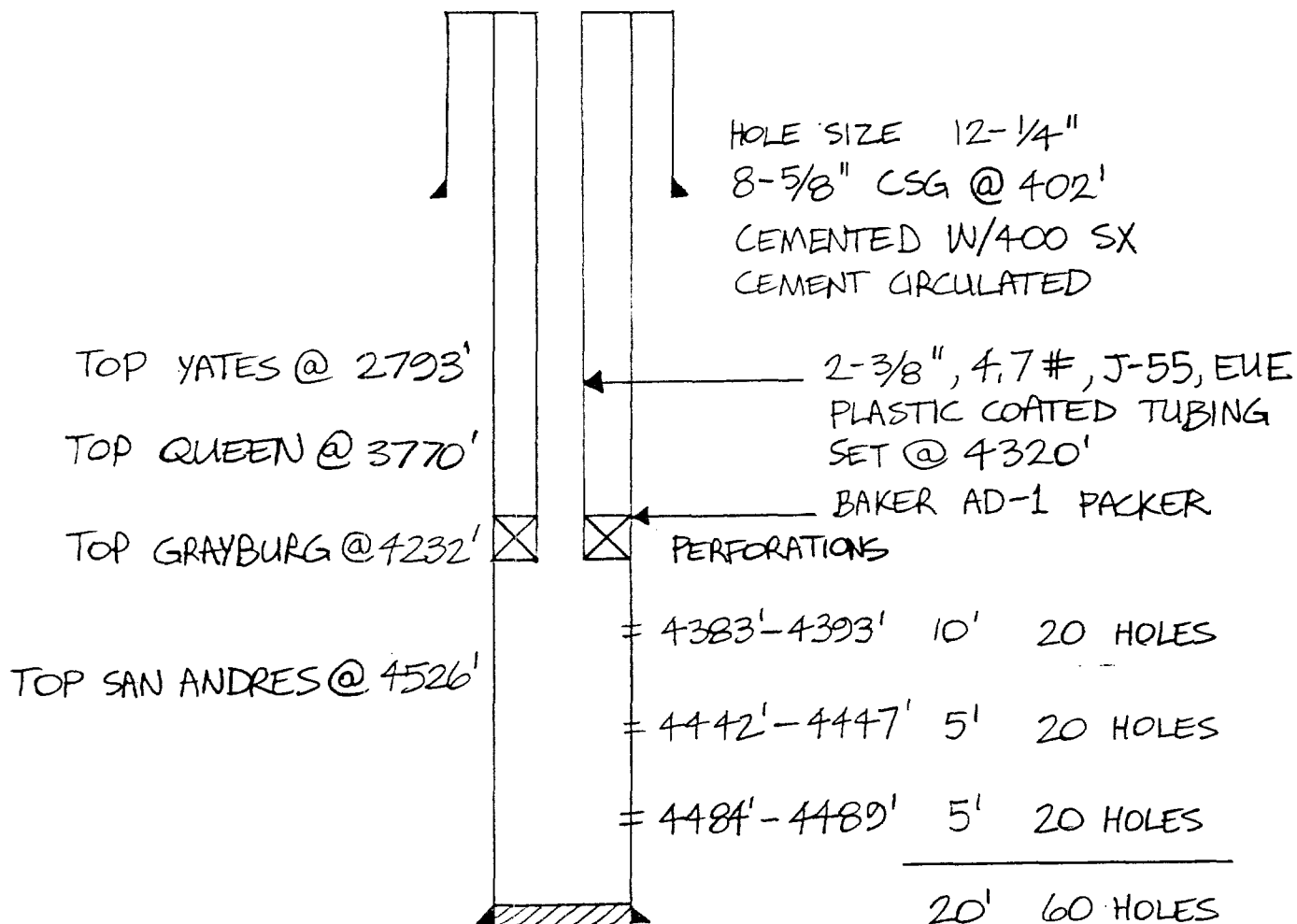
Phillips 'E' State Well No. 19

Order #R -3154, Nov. 28, 1966 (as amended by WFX-502)
Northeast Maljamar Waterflood Project.

ENGINEERING DISCUSSION:

There is strong evidence that the strata confining the injection of water into the Grayburg/San Andres formation in this well has a fracture gradient which would support a higher surface injection pressure. The results of an injection step rate test conducted 5/1/84 (see attached) indicate that fracturing occurs at surface injection pressures greater than 2800 PSIG. The mechanical integrity of this injection well and that of wells within a half mile radius are such that surface injection pressures of this magnitude can be sustained. Therefore, Phillips Oil Company requests permission to inject water into the Phillips 'E' State Well No. 19 at surface pressures which do not exceed 2600 PSIG.

PHILLIPS OIL COMPANY
Phillips E State No. 19
Unit J, 15, 17S, 33E,
Lea County, New Mexico



HOLE SIZE 7-7/8"
5-1/2" CSG @ 4603'
TOC @ 2650'



PHILLIPS OIL COMPANY
Phillips E State No. 19
Unit J, 15, 17S, 33E,
Lea County, New Mexico

SERVICE REPORT

OWNER/OPERATOR
Phil
FIELD

IBER
ST E 17

DATE
5-1-84

ORDER NUMBER

LOCATION

PROVINCE/COUNTY/STATE
LFA NM

FORMATION

TYPE TREATMENT
STEP RATE

TYPE ☐ OIL ☒ WATER INJ.
OF WELL ☐ GAS ☐ WATER DIS. ☐ OTHER
TYPE OF ☐ NEW ☐ RE-COMPLETION
COMPLETION ☐ REWORK ☐ OTHER

PERFORATIONS

ZONE SHOTS/FT. FROM TO

WELL DATA

	SIZE	WGT.	SET FROM	TO	CAPACITY
TUBING	<i>2 3/4</i>				
CASING					
ANNULUS					
OPEN HOLE					

WELL DEPTH

PACKER TYPE

SET AT

TD/PB

MATERIALS AND CONCENTRATION

250 BBL F/W

TREATMENT FLUIDS

BBLS TYPE

FILL HOLE

BREAKDOWN

PAD

TREATING

244

F/W

FLUSH

OVERFLUSH

TOTAL

244

TREATMENT INSTRUCTIONS

TREAT DOWN

☒ TBG. ☐ ANNULUS ☐ CSG ☐ TBG. & ANNULUS

PRESSURE - LIMIT

TBG. PSI CSG. PSI

PRESSURE - MIN.

2390

MAX.

3200

AVG.

3000

INJ. RATE - TREAT

.4 - 2.4

FLUSH

AVG.

1.2

I.S.I.P.

5 MIN.

10 MIN.

15 MIN.

TIME A.M./P.M.	PRESSURE		INJ. RATE	BBLS. PUMPED	BBLS. IN FORM.	EXPLANATION
	TBG.	CSG.				

ARRIVE LOCATION

ROUND TRIP MILES

<i>9:00</i>						<i>ST .5 BPM</i>
<i>10:07</i>						<i>SHUT DOWN FOR 5min + GET ISIP 2390</i>
<i>10:14</i>	<i>2390</i>		<i>.4</i>	<i>51.2</i>		<i>RESUME PUMPING @ .9 BPM</i>
<i>10:53</i>	<i>2700</i>					<i>SHUT DOWN FOR 5min + GET ISIP 2600</i>
<i>10:59</i>	<i>2500</i>	<i>-</i>	<i>.9</i>	<i>49</i>		<i>RESUME PUMPING @ 1.4 BPM</i>
<i>11:24</i>	<i>2950</i>	<i>-</i>				<i>SHUT DOWN + GET ISIP 2650</i>
<i>12:28</i>	<i>2400</i>		<i>1.4</i>	<i>42</i>		<i>RESUME PUMPING @ 2.0 BPM</i>
<i>12:54</i>	<i>3100</i>	<i>-</i>				<i>SHUT DOWN + GET ISIP 2600</i>
<i>1:00</i>	<i>2525</i>		<i>2.0</i>	<i>59</i>		<i>RESUME PUMPING @ 2.4</i>
<i>1:13</i>	<i>3200</i>		<i>2.4</i>	<i>33</i>		<i>JOB COMPLETE ISIP 2625</i>

LEAVE LOCATION

EQUIPMENT AND PERSONNEL

UNIT	OPERATOR	UNIT	OPERATOR	UNIT	OPERATOR	SERVICE ENGINEER
<i>104</i>	<i>JACK</i>					<i>JARNEY</i>
UNIT	OPERATOR	UNIT	OPERATOR	UNIT	OPERATOR	

PHILLIPS OIL COMPANY
 Phillips E State No. 19
 Unit J, 15, 17S, 33E,
 Lea County, New Mexico

STEP RATE INJECTION TEST

<u>STEP</u>	<u>INJECTION RATES</u>		<u>PRESSURES (PSI)</u>			
	<u>BWPM</u>	<u>BWPD</u>	<u>SURFACE</u>	<u>*BH</u>	<u>**FRICTION</u>	<u>P_s - P_f</u>
1	0.4	576	2390	4360	30	2360
2	0.9	1296	2700	4625	75	2625
3	1.4	2016	2950	4810	140	2810
4	2.0	2880	3100	4845	255	2845
5	2.4	3456	3200	4850	350	2850

THE TEST WAS RUN THROUGH 2-3/8" PLASTIC COATED TUBING
 ID = 1.977" C = 140

$$P(\text{hydrostatic}) = (0.456 \text{ psi/ft})(4383 \text{ ft}) = 2000 \text{ psi}$$

* P(bottom hole) was calculated using a computer program

$$** P(\text{friction}) = P(\text{surface}) + P(\text{hydrostatic}) - P(\text{bottom hole})$$

NOON

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STEP RATE TEST

ON STE #19

PHILLIPS PET CO

LEA Co

S-184

RED T66 R

GREEN RATE

11 AM

RECORDING CHART, GRAPHIC CONTROLS CORPORATION

BUFFALO, NEW YORK

10 AM

1st stage @

.48 PM

-ST

1/2 3.0 m

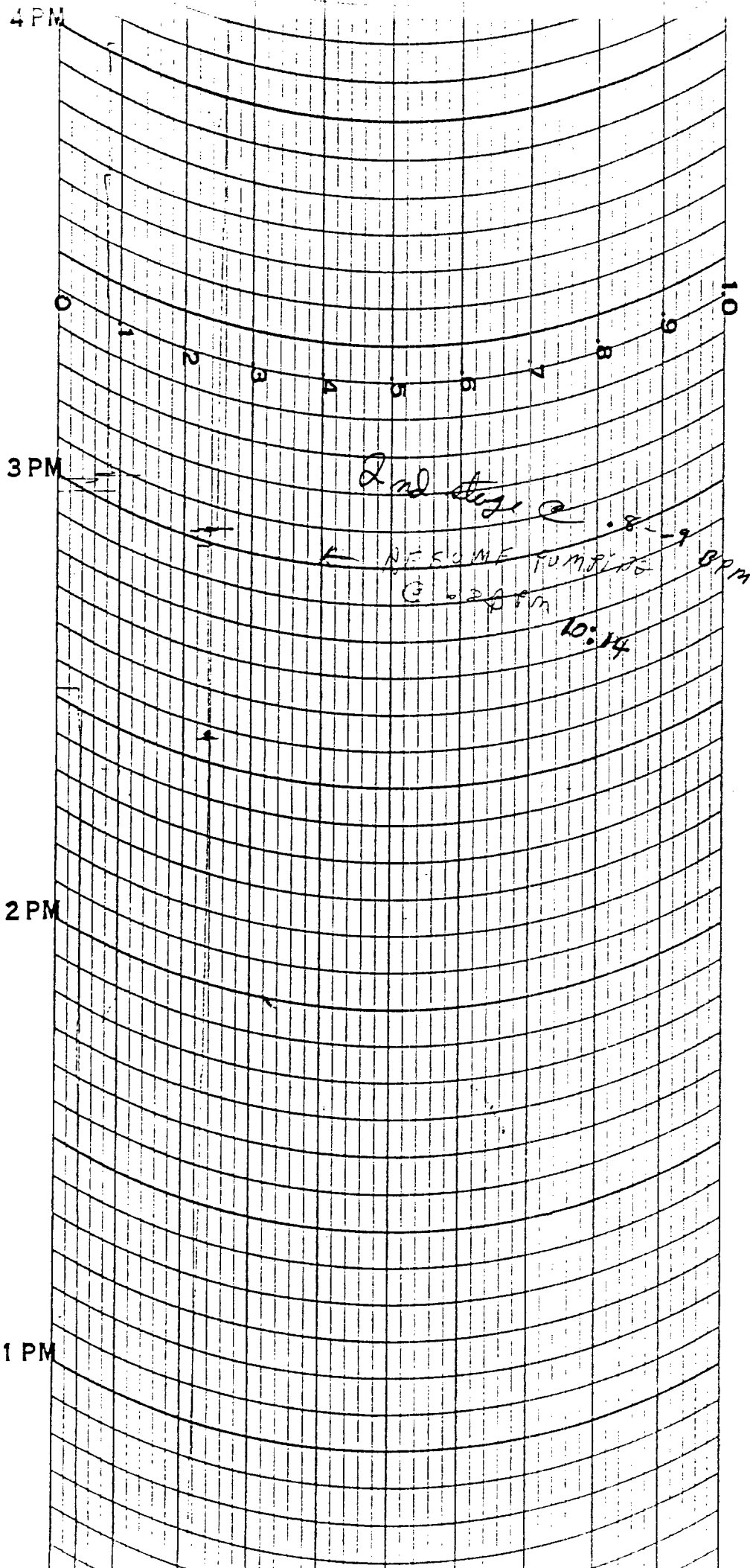
9:00

No. 4305-C

9 AM

PHILLIPS OIL COMPANY
Phillips E State No. 19
Unit J, 15, 17S, 33E,
Lea County, New Mexico

No. 4305-C

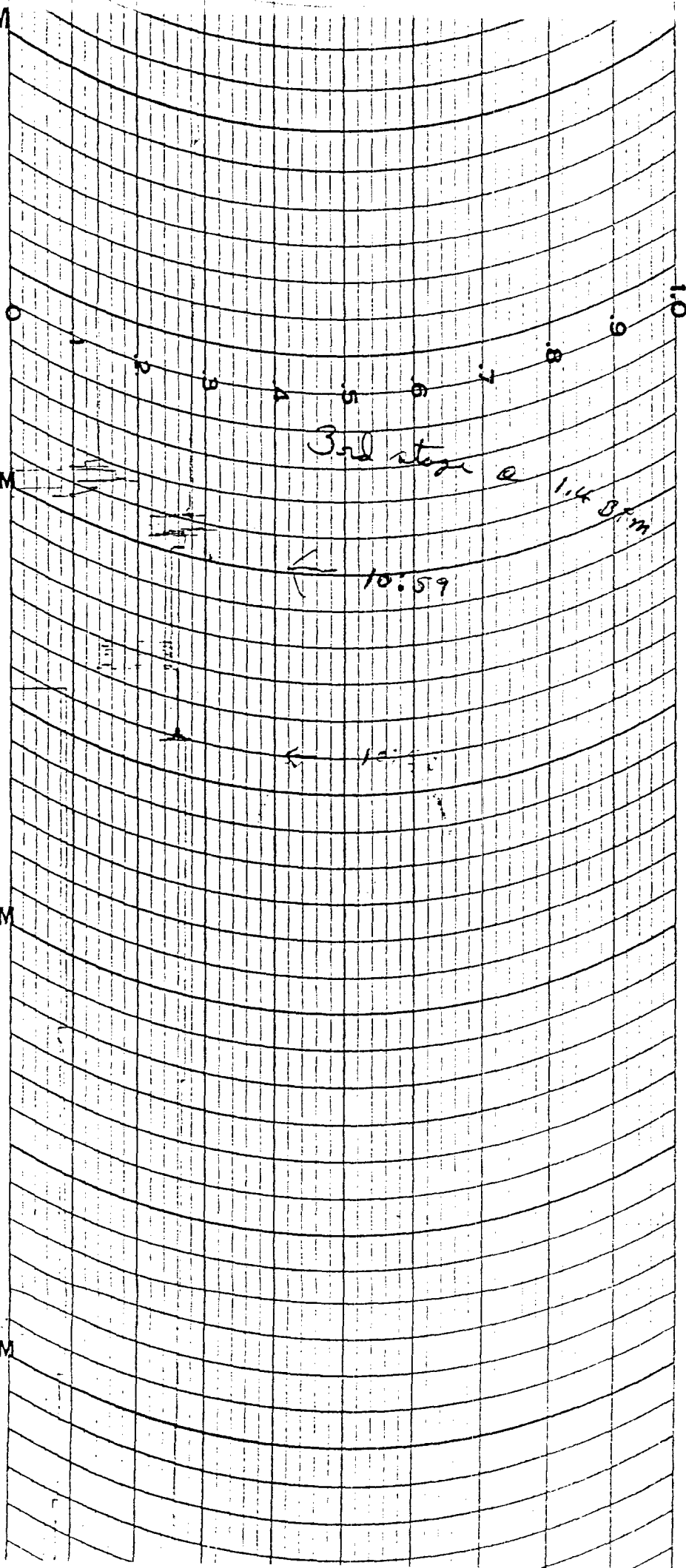


7 PM

6 PM

5 PM

4 PM



PRINTED IN U.S.A.

RECORDING CHART

GRAPHIC CONTROLS CORPORATION

BUFFALO, NEW YORK

No. 4305-C

BUFFALO, NEW YORK

No. 4305-C

10 PM

9 PM

8 PM

7 PM

1:00 2.4 2.4

0 1 2 3 4 5 6 7 8 9 10

CA

12:28

11th stage @ 1.8 2.9874

11:34

RECORDING CHARTS

GRAPHIC CONTROLS CORPORATION

BUFFALO, NEW YORK

NO. 4305—C

11 PM

5th stage C 2.4 Bp
1:00

10 PM

9 PM

1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
0

CA

12:28

STEP RATE TEST - PHILLIPS 'E' STATE WELL NO. 19.

PHILLIPS OIL COMPANY
Phillips E State No. 19
Unit J, 15, 17S, 33E
Lea County, New Mexico

1 1/2" x 10" TO 1" INCH I.D. PER 100'
KUDIEL & SONS CO. MARIETTA, GA.

